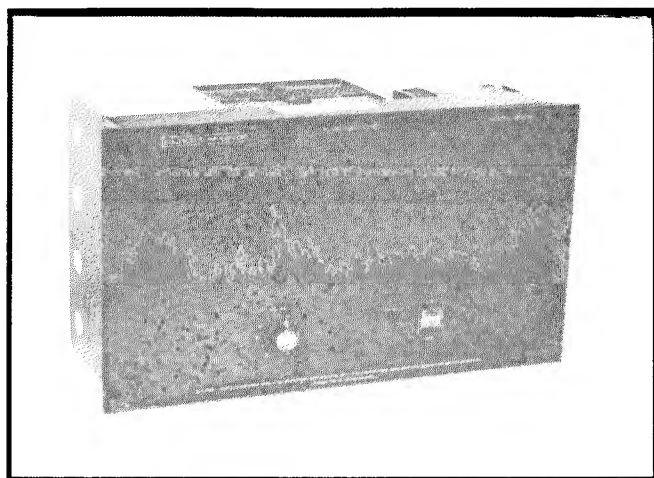




# 1590E Power Amplifier



## KEY FEATURES

- ★ DC Voltage Backup Ensures Uninterrupted Operation
- ★ Switchable High-Pass Filter

## DESCRIPTION

The Altec Lansing **1590E** Power Amplifier is designed for applications where uninterrupted operation is a priority. The **1590E** provides 200 watts of power at less than 1% total harmonic distortion (THD) from 50 Hz to 12 kHz, and has a frequency response of -1 dB from 20 Hz to 20 kHz at one watt output. Output transformer taps provide connections for 70.7, 100, 140 and 200 volt line distribution systems.

The **1590E** features silicon solid-state circuitry, a switchable high-pass filter for use in speech systems, input connections for high impedance devices and for 150/600 ohm or 15,000 ohm balanced inputs, fail-safe protection for output transistors, and a hinged front panel for rapid access to the chassis interior.

The **1590E** is capable of operation from a negative grounded 24/28 V DC source. The **1590E** is UL listed for use in commercial audio systems and fire protective signaling systems.

Designed for rack-mounted use, the **1590E** occupies six units of vertical space, 10.5 inches (26.7 cm).

## SPECIFICATIONS

Gain:	67 dB.
Input Sensitivity:	0.8 Vrms for rated output.
Power Output:	200 watts at less than 1% THD from 50 Hz to 12 kHz.
Frequency Response:	$\pm 1$ dB, 20 Hz to 20 kHz at 1 watt output. $\pm 1$ dB, 50 Hz to 12 kHz at rated output.
Input Impedance:	15 kohms. 15 kohms balanced with 15335A Line Transformer. 150/600 ohms balanced with 15095A Line Transformer.
Load Impedance:	25, 50, 100, and 200 ohms.
Load Voltage:	70.7, 100, 140 and 200 volts.
Output Impedance:	Less than 25% of nominal load impedance.
Noise Level:	Output noise 85 dB below rated output.
Operating Temperature Range:	Up to 55°C (131°F).
Controls:	1 VOLUME control, continuously variable. 1 power OFF-ON switch. 1 high-pass filter switch.
Power Required:	100/120/220/240 AC, 50/60 Hz, 25 W at zero signal, 420 W at 200 W output. -or- 24/28 V DC (battery (-) is ground), 0.2 A at zero signal, 14 A at 200 W output.
Special Features:	Automatic transfer from AC to DC power in the event of AC power failure. Dissipation sensing circuit for protection of output transistors. High-pass filters.

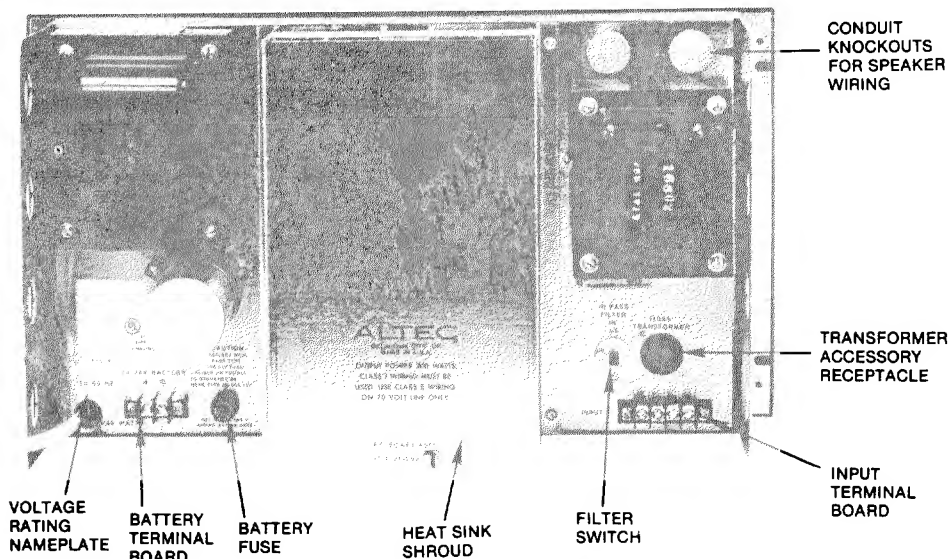


Figure 2. Rear View of 1590 Power Amplifier

Terminal Block TB8/TB9 Connections			
Transformer T1			
Wire Color	100V	120V	240V
Brown	TB9-4	TB8-4	TB8-4
White	TB8-4	TB9-4	TB9-2
Black	TB9-7	TB9-7	TB9-5
White-Brown	TB9-1	TB8-3	TB9-4
White-Black	TB9-8	TB9-8	TB9-8

Permanent AC Power Connections*	
Pilot Light S2-4	TB9-6
AC Cord (black)	TB8-9
AC Cord (white)	TB9-9
Switch SW2-3	TB8-5
Fuse F1-2	TB8-8
Capacitor C7	TB9-10
Capacitor C6	TB8-10

\*Do not make any wiring changes of these wire connections when altering the amplifier for different primary power operating voltage.

Figure 3. Primary Power Conversion Chart for 100V, 120V, and 240V 50/60 Hz Operation

4. Select the appropriate voltage rating label from the rating label strip supplied with the amplifier. Affix label over previous voltage rating designation on chassis. See Figure 2.

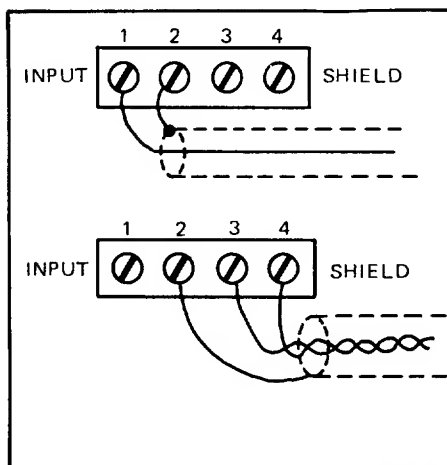


Figure 4. Input Connections

5. When 1590 is strapped for 200V or 240V line power, replace front panel fuse (F1) with 2A, 250V, slo-blo type fuse.

6. Close front panel and secure with four screws previously removed.

#### Battery Connections

If desired, the 1590 may be connected to an external 24/28 volt battery with minus (-) as ground. Terminals for the dc power connections are on TB4 (see Figure 2). If ac power fails, transfer to dc power is instantaneous, automatic and silent. The battery power supply is not operated by the primary power ON-OFF switch on the front panel. If switching of battery power is desired, an external relay or switch should be provided by the user.

#### Input Connections

Input connections may be either direct or transformer-isolated at the INPUT terminal board (TB1) (see Figure 2). Direct coupling is accomplished by connecting the input leads (shielded conductor recommended) to terminals 1 and 2. Terminal 2 is ground (see Figure 4).

For transformer-isolated input, a plug-in 15095A or 15335A Line Transformer must be plugged into receptacle J1 (see Figure 2).

#### DIRECT CONNECTION

1. For unbalanced high-impedance sources.
2. For bridging unbalanced low-impedance lines having signal voltages of 0.8V rms or higher.

#### TRANSFORMER ISOLATED CONNECTION

1. For balanced or unbalanced lines of 150 or 600 ohms\* up to level of +15 dBm (with 15095A Line Transformer).
2. For low-impedance line bridging input or 15,000 ohm line-matching input (with 15335A Line Transformer).

\*Factory wiring at receptacle J1 is for 600 ohms (see Figure 5).

The input leads are connected to terminals 3 and 4 of the INPUT terminal board (see Figure 4).

When shipped from the factory, pins 3 and 4 of J1 are strapped together to provide a 600-ohm input. A 150-ohm input may be obtained by removing the strap from pins 3 and 4 and then strapping pin 1 to 4, and strapping pin 3 to 6 (see Figure 5).

Both the direct and transformer isolated inputs may be used simultaneously if isolation resistors are installed in either or both input lines, to prevent one input source from short circuiting to the other.

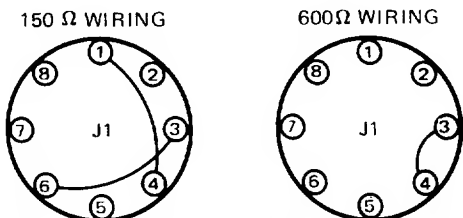


Figure 5. Wiring of Transformer Accessory Receptacle for Input Impedance of 150 or 600 Ohms. Factory Wiring is for 600 Ohms

#### Output Connections

Output transformer taps provide connections for 25V (140 watts), 30V, 70.7V, 100V, 140V and 200V distribution systems. Class I wiring must be used for 100V, 140V and 200V systems. Class II wiring may be used only for the 30V and 70V systems. Connections are made at terminal board TB2 located within the chassis (see Figure 6). Wiring from the speaker system feeds through the chassis to TB2; 1/2" conduit knockouts in the chassis provide access to output terminals of TB2 and permit termination as required for Class I wiring (see Figure 2).

Recommended wire size for 200V operation is 18 gauge (solid or stranded), for which power loss is 1/2 dB per 1900 feet of paired wire. When rigid conduit is not used clamp-type cable connectors must be installed in the conduit knockouts to secure the cable and provide strain relief.

#### NOTE

Typical clamp-type cable connectors are the Appleton CG-1850 (for Class I flexible cord such as type SV or SVT), and the Appleton CG-1250 (for Class II audio cable such as Alpha Wire Corp. No. 1897 [stranded] or No. 1797 [solid]).

After speaker distribution wires are passed to the site of TB2, quick-connect terminal clips (T&B type RA257) must be installed. Be sure that output wiring between knockouts and TB2 does not exceed 9 inches in length. Strip 1/4" insulation from the wire ends and install the terminal clips. Twist stranded wire to assure that all strands properly enter the sleeve of the terminal clip. Use an appropriate crimping tool (such as M. Klein & Sons #1002) to crimp the terminal clips to the wire ends.

Connect terminal clips to the terminals of TB2 which have the desired impedance. If total speaker system impedance falls between two rated output values of the 1590,